UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,901	09/11/2006	Edwin Ng	31046/41827	3437

4743 7590 09/07/2007

MARSHALL, GERSTEIN & BORUN LLP
233 S. WACKER DRIVE, SUITE 6300
SEARS TOWER
CHICAGO, IL 60606

EXAMINER	
HUR, ECE	

ART UNIT	PAPER NUMBER
2109	

MAIL DATE	DELIVERY MODE
09/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/564,901	NG ET AL.	
	Examiner	Art Unit	
	ECE HUR	2109	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☒ Claim(s) *29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date ~~08/11/2006~~. 12-26-06
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is responsive to application filed on January 17, 2006 and IDS filed on September 11, 2006, in which claims 1-42 are presented for examination. This application is a new PCT National Stage application of PCT/SG04/00190 that was filed on June 30, 2004. Applicant is claiming foreign priority for the application 20034112-6 filed on July 17, 2003 in Singapore.

Status of Claims

Claims 1-42 are pending in the case. Claims 1 and 25 are independent claims.
Claims 1, 2,18, 23, 25, 27-39 and 42 are rejected under U.S.C. 102(e).
Claims 3-22, 24, 26, 40 and 41 are rejected under 35 U.S.C. 103(a).

Information Disclosure Statement Acknowledgement

The information disclosure statements filed on September 11, 2006 is in compliance with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. It has been placed in the application file, the information referred to therein has been considered as to the merits.

Priority Acknowledgement

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Receipt is acknowledged of certified copy of application 20034112-6, filed on July 17, 2003, in Singapore submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Abstract Objection

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Specification Objection

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claim 29 is objected to because of the following informalities: missing period at the end of the sentence. Appropriate correction is required.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 18 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Williams, US Patent 7,155,683.

Regarding Claim 1, Williams discloses a communication terminal having a display and a keypad having a plurality of keys associated with several letters, processor means controlling the display means in accordance with the operation of the keypad and a selectable predictive editor program for generating an output containing words matching a received string of ambiguous key strokes, said predictive editor program has a number of associated vocabularies including at least one language dependent dictionary and at least one dictionary receiving user defined inputs. (Williams, See Abstract).

Williams discloses the claimed aspect of a method of inputting for a text input system, wherein to input a data value or data symbol on a keyboard using a letter and word choice text input method comprising the steps of inputting a character using the keyboard in FIG. 1 and FIG. 2, wherein in FIG. 1 a phone is illustrated that comprises a user interface having a keypad 2, a display 3, an on/off button 4 FIG. 3), a speaker 5 (only openings are shown in FIG. 1), and a microphone 6 (only openings are shown in FIG. 1). (Williams, Page 3, Paragraphs 5-10). Additionally, the keypad 2 has a first group 7 of keys as alphanumeric keys, a soft key 8, and a navigation key 10. Furthermore the keypad includes a "clear" key 9. The present functionality of the soft key 8 is shown in a separate field in the display 3 just above the key 8. (Williams, Page 3, Paragraph 15).

Williams discloses the claimed aspect of matching the unambiguous character inputted with a stored keystroke in a database, the stored keystroke having associated letter choices stored in the database wherein the associated letter choice is a data value or a data symbol associated with the stored keystroke in FIG. 3, wherein the major components of the predicative editor is illustrated and the interface is established by the display 3 and the keyboard 2. The processor 18 executes instructions and reads and writes data from a memory 17. Software instructions in the memory 17 include an operating system 40, a disambiguation program 42 and its vocabularies 41, and optionally one or more application programs 43, 44. Furthermore data is entered on the keypad 2 which comprises of individual alpha-numerical keys 7. Most of these keys 7 have multiple meanings, represented by letter, numbers and symbols printed on the keys. The entered text is shown in the display 3 of the phone. The text already entered (and accepted by the user) is shown in the same text format as the standard display format of the phone. The word presently being entered is underlined or reversed in colors in order to indicate that the letter string has not been fixed yet. The predictive editor is able to interpret individual keys and multiple key sequences in several ways simultaneously. (Williams, Page 2, Paragraph 0031). Also Williams discloses in FIG. 4 an architecture of the disambiguating software. An input from a keypad 2 is processed in an input manager 60. Input data is via internal bus means 64 passed to a processing module 61, which keeps a record of the current key sequence until the user has accepted a word based on this sequence by pressing the space key 52. When a key stroke has been received by processing module 61, the current key sequence is

communicated via internal bus means 64 to a prediction processor 62, which forwards the sequence to one or more modules 41 acting as electronic vocabularities. (Williams, Page 4, Paragraph 25).

Williams discloses the claimed aspect of matching the beginning of the keystroke sequence with a stored keystroke sequence in a database, the stored keystroke sequence having associated word choices stored in the database wherein the associated word choice is a data value or a data symbol associated with the stored keystroke sequence displaying as text input the data value or data symbol assigned to the inputted character or keystroke sequence wherein the vocabulary modules 41a, 41b, 41c, . . . 41N work in parallel and respond individually if they contain data matching the current key stroke sequence. One vocabulary module 41a might include a dictionary containing words in a language, e.g. English, defined by the user and used as editing language. According to the preferred embodiment some of the vocabulary modules 41a, 41b, 41c, . . . 41N may contain personalized user defined words, e.g. entered by using the standard editor of the phone (when the predictive editor did not find the word the user was looking for) or by copying the names from the phonebook into one of the vocabulary modules. In the preferred embodiment vocabulary module 41b and 41c contains the word entered by the standard editor and word copied from the phonebook, respectively. (Williams, Page 4, Paragraphs 30-40).

Williams discloses the claimed aspect of displaying the matching letter choices associated with the character and displaying the matching word choices associated with the beginning keystroke sequence, The vocabulary modules 41a, 41b, 41c, . . . 41N

often supply a plurality of matching word--either being displayed or available through the selection list 50. The prediction processor 62 accumulates a complete list of matching words for the selection list 50 from all vocabulary modules 41a, 41b, 41c, . . . 41N. When prediction processor 62 has finalized the processing, the processing module 61 transfers the selection list 50 to a display manager 63 and the display 3 via the internal bus means 64. (Williams, Page 4, Paragraphs 45-50).

Regarding Claim 2, most of the limitations have been met in the rejection of Claim 1. See the rejection of Claim 1 for details. Williams discloses the claimed aspect of the letter choice are accented or diacritic variations of the associated character, wherein the communication terminal with a keypad having a key for requesting input of a special sign from a list of special signs in the text string, and wherein the keypad has a key for requesting the processor to replace a special sign with the next special sign from the list of special signs, and said processor handled this list of special signs as and endless loop. Hereby alternative special signs become available in an easy way. (Williams, Page 2, Paragraph 15). Applicant should duly note that the sign could be an umlaut.

Regarding Claim 18, most of the limitations have been met in the rejection of Claim 1. See the rejection of Claim 1 for details. Williams and Savolainen discloses the claimed aspect of keyboard can be text input in FIG. 1. Applicant should duly note that virtual text input system is widely used. (Robinson, See Fig. 1A).

Regarding Claim 23, most of the limitations have been met in the rejection of Claim 21. See the rejection of Claim 1. Williams discloses the claimed aspect of a choice of punctuations & symbols will be displayed on pressing a key or a combination of keys, wherein the communication terminal with a keypad having a key for requesting input of a special sign from a list of special signs in the text string, and wherein the keypad has a key for requesting the processor to replace a special sign with the next special sign from the list of special signs, and said processor handled this list of special signs as and endless loop. Hereby alternative special signs become available in an easy way. (Williams, Page 2, Paragraph 0008). Also Savolainen discloses the claimed aspect of a choice of punctuations & symbols will be displayed on pressing a key or a combination of keys in FIG. 1, wherein a keyboard 14 with a reduced number of keys is illustrated with a plurality of letters and symbols are assigned to a set of data keys 15 and a select key 17 is pressed by a user to delimit the end of a keystroke sequence. Select key 17 includes a select key 17a, a delete key 17b, a delete key 17b and a shift key 17c.

Claims 25, 27-39 and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Savolainen, US 20020126097 A1.

Regarding Claim 25, Savolainen discloses the claimed aspect of a keyboard or text input detector in FIG. 3, wherein a flow chart S1 step is "Detect Keystroke".

Savolainen discloses the claimed aspect of a database for storing letter or word choice wherein the letter or word choice is a data value or data symbol associated with an input keystroke of the keys or an input keystroke sequence of the keys respectively, wherein at S4, objects corresponding to the keystroke sequence are identified from the vocabulary modules in the system. Vocabulary modules are libraries of objects that are associated with keystroke sequences. An object is any piece of stored data that is to be retrieved based on the received keystroke sequence. For example, objects within the vocabulary modules may include numbers, letters, words, stems, phrases, or system macros. (Savolainen, Page 4, Paragraph 0045).

Savolainen discloses the claimed aspect of a display for displaying the letter choices or word choices and a display for displaying the inputted text, wherein alphanumeric data may be entered via the reduced keyboard 61, as shown in FIG. 8. The keystroke sequence entered onto the reduced keyboard by the user is processed by a text input system 74 so that the desired text ultimately appears on display 67. The text input system 74 may utilize dictionary 75 to provide the text that corresponds to the keystroke sequence entered by the user. (Savolainen, Page 8 Paragraph 0081, lines 1-8).

Regarding Claims 27 and 28, most of the limitations have been met in the rejection of Claim 25. See the rejection of Claim 25. Savolainen discloses the claimed aspect of choices are displayed in a predetermined window or display area in a single or double rows and the choices can be selected directly from the screen in FIG. 1, wherein

Objects associated with a keystroke sequence that match the entered keystroke sequence are displayed to the user in a selection list 27 on a display 16. The objects are listed in the selection list according to their frequency of use. A select key 17a is pressed by a user to delimit the end of a keystroke sequence. The first entry in the selection list is automatically selected by the system as the default interpretation of the ambiguous keystroke sequence. The user accepts the selected interpretation by starting to enter another ambiguous keystroke sequence. Alternatively, the user may press the select key 17a a number of times to select other entries in the selection list. For words that are not in the vocabulary modules, a two-stroke or multiple-stroke method may be used to unambiguously specify each letter. The system simultaneously interprets all entered keystroke sequences as a word, as a two-stroke sequence, and as a multiple-stroke sequence. The multiple interpretations are automatically and simultaneously provided to the user in the selection list. (Savolainen, Page 2, Paragraph 0029, lines 16-36).

Regarding Claim 29, most of the limitations have been met in the rejection of Claim 28. See the rejection of Claim 28. Savolainen discloses the claimed aspect of inputted text with choices in FIG. 1, wherein a display 16 illustrates inputted text with choices. Applicant should duly note that more than one line display is commonly used.

Regarding Claim 30, most of the limitations have been met in the rejection of Claim 27. See the rejection of Claim 27. Savolainen discloses the claimed aspect of choices are displayed in a predetermined window or display area and the choices can be selected directly from the screen in FIG. 1, wherein Objects associated with a keystroke sequence that match the entered keystroke sequence are displayed to the user in a selection list 27 on a display 16. The objects are listed in the selection list according to their frequency of use. A select key 17a is pressed by a user to delimit the end of a keystroke sequence. The first entry in the selection list is automatically selected by the system as the default interpretation of the ambiguous keystroke sequence. The user accepts the selected interpretation by starting to enter another ambiguous keystroke sequence. Alternatively, the user may press the select key 17a a number of times to select other entries in the selection list. For words that are not in the vocabulary modules, a two-stroke or multiple-stroke method may be used to unambiguously specify each letter. The system simultaneously interprets all entered keystroke sequences as a word, as a two-stroke sequence, and as a multiple-stroke sequence. The multiple interpretations are automatically and simultaneously provided to the user in the selection list. (Savolainen, Page 2, Paragraph 0029, lines 16-36). Applicant should duly note that virtual text input system is widely used. (Robinson, See Fig. 1A).

Regarding Claims 31 and 32, most of the limitations have been met in the rejection of Claim 27. See the rejection of Claim 27. Savolainen discloses the claimed

aspect of a key for cycling between choices and list of choices if the letter or word choices are too much to display within the predetermined window or display area, wherein in FIG. 10 flow diagram in step S102 is Yes, processing continues to step S110 where it is determined whether the item has been selected by the user. The selection may be determined by entering the selection keystroke again, for example. If the answer in step S110 is Yes, then the selected word is displayed as the desired text in step S111. If the answer in step S110 is No, then the next item in the prioritized list of matches is highlighted or indicated in some manner in step S112. Processing then continues to step S110 until the desired text is selected. (Savolainen, Page 9, Paragraph 0087).

Regarding Claim 33, most of the limitations have been met in the rejection of Claim 25. See the rejection of Claim 25. Savolainen discloses the claimed aspect of data stored is stored in the order of the most recently selected data to the least recently selected data, wherein each object associated with a child node is constructed by adding a character sequence onto an object that was constructed for the parent node. The object packet 48 therefore contains a previous object identifier field 44 that identifies from a parent node object list an object that is used to construct the child node object. For example, with reference to FIG. 4B, the third object "fo" in the old object list 50 is used to construct the first object "foe" in the new object list 52. The previous object identifier field 44 therefore provides a link to the entries in the old object list to identify the old object used to construct the new object. (Savolainen, Page 6, Paragraph 0057).

Furthermore, Savolainen discloses that the objects are listed in the selection list according to their frequency of use. A select key 17a is pressed by a user to delimit the end of a keystroke sequence. (Savolainen, Page 2, Paragraph 0029, lines 18-23).

Regarding Claim 34, most of the limitations have been met in the rejection of Claim 25. See the rejection of Claim 25. Savolainen discloses the claimed aspect of letter and word choices are presented in fixed numbers or groups of fixed numbers in FIG. 1, wherein display 16 illustrates in 18,19, 20, 21, 22 word choices are presented.

Regarding Claims 35, 36 and 37, most of the limitations have been met in the rejection of Claim 35. See the rejection of Claim 35. Savolainen discloses the claimed aspect of auxiliary key or shift key can be sticky or pressed together with other keys to differentiate between the normal auxiliary or shift function and the short-cut function and the short-cuts are associated with the letter and word choices in FIG. 1, wherein numerals are illustrated on keys and shift key allows users to use different functions illustrated on the keys. Furthermore, the system includes a keyboard 14 with reduced number of keys.

Regarding Claim 38, most of the limitations have been met in the rejection of Claim 25. See the rejection of Claim 25. Williams and Savolainen discloses the claimed aspect of keyboard can be text input in FIG. 1. Applicant should duly note that virtual text input system is widely used. (Robinson, See Fig. 1A).

Regarding Claim 39, most of the limitations have been met in the rejection of Claim 38. See the rejection of Claim 38. Savolainen discloses the claimed aspect of keyboard is part of a reduced keyboard system and the character could be one of the characters in a multi-character key in FIG. 1, wherein a reduced keyboard is illustrated with multi-character key.

Regarding Claim 42, most of the limitations have been met in the rejection of Claim 25. See the rejection of Claim 25. Savolainen discloses the claimed aspect of numerals will be displayed on pressing a key or a combination of keys in FIG. 1, wherein numerals are illustrated on keys and shift key allows users to use different functions illustrated on the keys.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams US 7,155,683 in view of Savolainen, US Pub. No.: 20020126097 A1.

Regarding Claim 3, most of the limitations have been met in the rejection of Claim 1. See the rejection of Claim 1 for details. Williams does not teach specifically the claimed aspect of selecting a new choice and displaying the new choice as text input over the previous displayed text. However, Savolainen discloses the claimed aspect of selecting a new choice and displaying the new choice as text input over the previous displayed text in FIG. 1, wherein Objects associated with a keystroke sequence that match the entered keystroke sequence are displayed to the user in a selection list 27 on a display 16. The objects are listed in the selection list according to their frequency of use. A select key 17a is pressed by a user to delimit the end of a keystroke sequence. The first entry in the selection list is automatically selected by the system as the default interpretation of the ambiguous keystroke sequence. The user accepts the selected interpretation by starting to enter another ambiguous keystroke sequence. Alternatively, the user may press the select key 17a a number of times to select other entries in the selection list. For words that are not in the vocabulary modules, a two-stroke or multiple-stroke method may be used to unambiguously specify each letter. The system simultaneously interprets all entered keystroke sequences as a word, as a two-stroke sequence, and as a multiple-stroke sequence. The multiple interpretations are automatically and simultaneously provided to the user in the selection list. (Savolainen, Page 2, Paragraph 0029, lines 16-36). It would be obvious to one ordinary skill in the art

at the time of the invention to add Savolainen's displaying feature to Williams's communication terminal, because it would allow users to view their choice on screen.

Regarding Claim 4, most of the limitations have been met in the rejection of Claim 3. See the rejection of Claim 3 for details. Savolainen discloses the claimed aspect of displaying as text input again the data value or data symbol if the same choice is selected again in FIG. 10, wherein the answer in step S102 is Yes, processing continues to step S110 where it is determined whether the item has been selected by the user. The selection may be determined by entering the selection keystroke again, for example. If the answer in step S110 is Yes, then the selected word is displayed as the desired text in step S111. If the answer in step S110 is No, then the next item in the prioritized list of matches is highlighted or indicated in some manner in step S112. Processing then continues to step S110 until the desired text is selected. (Savolainen, Page 9, Paragraph 0087).

Regarding Claims 5 and 6, most of the limitations have been met in the rejection of Claim 1 and Claim 5. See the rejection of Claims 1 and 5 for details. Williams does not teach the claimed aspect of choices being displayed in a predetermined window or display area and the choices can be selected directly from the screen. However, Savolainen discloses the claimed aspect of choices are displayed in a predetermined window or display area and the choices can be selected directly from the screen in FIG. 1, wherein Objects associated with a keystroke sequence that match the entered

keystroke sequence are displayed to the user in a selection list 27 on a display 16. The objects are listed in the selection list according to their frequency of use. A select key 17a is pressed by a user to delimit the end of a keystroke sequence. The first entry in the selection list is automatically selected by the system as the default interpretation of the ambiguous keystroke sequence. The user accepts the selected interpretation by starting to enter another ambiguous keystroke sequence. Alternatively, the user may press the select key 17a a number of times to select other entries in the selection list. For words that are not in the vocabulary modules, a two-stroke or multiple-stroke method may be used to unambiguously specify each letter. The system simultaneously interprets all entered keystroke sequences as a word, as a two-stroke sequence, and as a multiple-stroke sequence. The multiple interpretations are automatically and simultaneously provided to the user in the selection list. (Savolainen, Page 2, Paragraph 0029, lines 16-36). It would be obvious to one of ordinary skill in the art at the time of the invention to combine Williams's communication terminal with Savolainen's predetermined window or display area, because it would allow users to view the options.

Regarding Claim 7, most of the limitations have been met in the rejection of Claim 5. See the rejection of Claim 5 for details. Savolainen discloses the claimed aspect of short-cut keys are associated or displayed beside the choices in FIG. 1, wherein a keyboard 14 with a reduced number of keys and a plurality of letters and

symbols are assigned to a set of data keys 15 so that keystrokes entered by a user are ambiguous. (Savolainen, Page 2, Paragraph 0029, lines 1-5).

Regarding Claim 8, most of the limitations have been met in the rejection of Claim 7. See the rejection of Claim 7 for details. Savolainen discloses the claimed aspect of pressing the short-cut key and displaying the choice associated with the short-cut key as text input over the previous displayed text, wherein Following entry of the keystroke sequence corresponding to the desired word, the user presses the select key 17a. Pressing the select key draws a box around the first entry in the selection list 27 and redisplays the first entry at the insertion point 25 with a box around the entry. If the first entry in the selection list is the desired interpretation of the keystroke sequence, the user continues to enter the next word using the data keys 15. The text input system interprets the start of the next word as an affirmation that the currently selected entry (in this case, the first entry in the selection list) is the desired entry. Alternatively, the selection of the first entry may occur after a user-programmable time delay. The default word therefore remains at the insertion point as the choice of the user, and is redisplayed in normal text without special formatting. (Savolainen, Page 3, Paragraph 0035).

Regarding Claims 9 and 10, most of the limitations have been met in the rejection of Claim 5. See the rejection of Claim 5 for details. Savolainen achieves the claimed aspect of cycling between lists of choices of other possible data values and

data symbols associated with the character or beginning of the keystroke sequence if the letter or word choices are too much to display within the predetermined window or display area selecting the choice and displaying the new choice as text input over the previous displayed text and cycling between the letter or word choice and displaying the next choice as text input over the previous displayed text, wherein in FIG. 10 flow diagram in step S102 is Yes, processing continues to step S110 where it is determined whether the item has been selected by the user. The selection may be determined by entering the selection keystroke again, for example. If the answer in step S110 is Yes, then the selected word is displayed as the desired text in step S111. If the answer in step S110 is No, then the next item in the prioritized list of matches is highlighted or indicated in some manner in step S112. Processing then continues to step S110 until the desired text is selected. (Savolainen, Page 9, Paragraph 0087).

Regarding Claim 11, most of the limitations have been met in the rejection of Claim 1. See the rejection of Claim 1 for details. Williams does not teach specifically the claimed aspect of the order of the associated letter choices of the matching having an order of the most recently selected data to the least recently selected data. However, Savolainen discloses the claimed aspect of wherein the order of the associated letter choices of the matching having an order of the most recently selected data to the least recently selected data, wherein the objects are listed in the selection list according to their frequency of use. A select key 17a is pressed by a user to delimit the end of a keystroke sequence. (Savolainen, Page 2, Paragraph 0029, lines 18-23). Applicant

should dully note that an object could be a letter or a word. It would be obvious to one of ordinary skill in the art at the time of the invention to combine Williams's communication terminal with Savolainen's most recently selected data to the least recently selected data aspect, because this will allow the users to look at the most recently used object first.

Regarding Claim 12, most of the limitations have been met in the rejection of Claim 1. See the rejection of Claim 1 for details. Williams does not teach the claimed aspect of stored keystroke sequence is only for a predetermined range of number of characters. However, Savolainen discloses the claimed aspect of stored keystroke sequence is only for a predetermined range of number of characters in FIG. 1, wherein the keystroke sequence is also interpreted as a string of numerical digits (hereinafter the "numeric interpretation"). Data keys 15 contain characters representing numerical digits. One of the interpretations provided in the selection list is therefore the numerical digits that correspond to the keystroke sequence. For example, entry 23 is the numeric interpretation ("8495") of the keystroke sequence ADF, OLX, NBZ, EWV. (Savolainen, Page 4, Paragraph 0041). It would be obvious to one of ordinary skill in the art at the time of the invention to combine Williams's communication terminal with Savolainen's stored keystroke sequence is only for a predetermined range of number of characters, because this will allow the system to perform prediction.

Regarding Claim 13, most of the limitations have been met in the rejection of Claim 1. See the rejection of Claim 1 for details. Williams does not teach the claimed aspect of number of associated word choices of the matching has a predetermined maximum number. However, Savolainen discloses the claimed aspect of number of associated word choices of the matching has a predetermined maximum number in FIG. 1, wherein in the display window 16 section 27 has a predetermined maximum number of word listing. It would be obvious to one of ordinary skill in the art at the time of the invention to combine Williams's communication terminal with Savolainen's predetermined maximum number of word choices, because this will allow the system to perform more efficiently.

Regarding Claim 14, most of the limitations have been met in the rejection of Claim 1. See the rejection of Claim 1 for details. Williams's does not teach the claimed aspect of the order of the associated word choices of the matching having an order of the most recently selected data associated with the same beginning keystroke sequence to the least recently selected data associated with the same beginning keystroke sequence. However, Savolainen discloses the claimed aspect of the order of the associated word choices of the matching having an order of the most recently selected data associated with the same beginning keystroke sequence to the least recently selected data associated with the same beginning keystroke sequence, wherein the objects are listed in the selection list according to their frequency of use. A

select key 17a is pressed by a user to delimit the end of a keystroke sequence. Applicant should dully note that an object could be a letter or a word. (Savolainen, Page 2, Paragraph 0029, lines 18-23). It would be obvious to one of ordinary skill in the art at the time of the invention to combine Williams's communication terminal with Savolainen's most recently selected data to the least recently selected data aspect, because this will allow the users to look at the most recently used object first.

Regarding Claim 15, most of the limitations have been met in the rejection of Claim 1. See the rejection of Claim 1 for details. Williams's does not teach the claimed aspect of associated word choice of the matching has a predetermined minimum character length. Savolainen discloses the claimed aspect of associated word choice of the matching has a predetermined minimum character length in FIG. 1, wherein the word "albeit" is displayed as "ALBE" 20. It would be obvious to one of ordinary skill in the art at the time of the invention to combine Williams's communication terminal with Savolainen's predetermined minimum character length aspect, because this will allow the system to display the matching object more efficiently.

Regarding Claim 16, most of the limitations have been met in the rejection of Claim 15. See the rejection of Claim 15 for details. Williams discloses the claimed aspect all selected or inputted data with the minimum character length will be stored in

the database of the matching as the most recently selected data associated with the same beginning keystroke sequence, wherein a selectable predictive editor program for generating an output containing words matching a received string of ambiguous key strokes, said predictive editor program has a number of associated vocabularies including at least one language dependent dictionary and at least one dictionary receiving user defined inputs. An editor application is controlled by the processor means communicates with said predictive editor programs for generating matching words based on an ambiguous string of key strokes. Second memory means of the communication terminal for storing user inputted data. The processor means automatically searches said second memory means for words and copies these words into said at least one dictionary for receiving user defined inputs and associated with said predictive editor program. (Williams, See Abstract).

Regarding Claim 17, most of the limitations have been met in the rejection of Claim 1. See the rejection of Claim 1 for details. Williams discloses the claimed aspect of wherein the word choice can contain accented and diacritic, wherein the communication terminal with a keypad having a key for requesting input of a special sign from a list of special signs in the text string, and wherein the keypad has a key for requesting the processor to replace a special sign with the next special sign from the list of special signs, and said processor handled this list of special signs as and endless loop. Hereby alternative special signs become available in an easy way. (Williams, Page 2, Paragraph 15). Applicant should duly note that the sign could be an umlaut.

Williams does not teach the claimed aspect of characters stored keystroke sequence only contains the corresponding normal characters or unaccented representation. However, Savolainen discloses the claimed aspect of characters stored keystroke sequence only contains the corresponding normal characters or unaccented representation, wherein at S4, objects corresponding to the keystroke sequence are identified from the vocabulary modules in the system. Vocabulary modules are libraries of objects that are associated with keystroke sequences. An object is any piece of stored data that is to be retrieved based on the received keystroke sequence. For example, objects within the vocabulary modules may include numbers, letters, words, stems, phrases, or system macros. (Savolainen, Page 4, Paragraph 0045).

It would be obvious to one of ordinary skill in the art at the time of the invention to combine Williams's special sign list and Savolainen's the keystroke sequence identification from the vocabulary modules in the system, because this would be more efficient to match similar word.

Regarding Claims 19 and 20, most of the limitations have been met in the rejection of Claim 18. See the rejection of Claim 18 for details. Williams's does not teach specifically the claimed aspect of keyboard is part of a reduced keyboard system and the character could be one of the characters in a multi-character key. However, Savolainen discloses the claimed aspect of keyboard is part of a reduced keyboard system and the character could be one of the characters in a multi-character key in FIG. 1, wherein a reduced keyboard is illustrated with multi-character key. It would be

obvious to one of ordinary skill in the art at the time of the invention to combine Williams's keyboard with Savolainen's reduced keyboard system, because it would allow to apply more functions to reduced keyboard size objects.

Regarding Claim 21, most of the limitations have been met in the rejection of Claim 20. See the rejection of Claim 20. Savolainen discloses the claimed aspect of matching the keystroke inputted with a stored keystroke in a database, the stored keystroke having associated letter choices stored in the database and the associated letter choice is a data value or a data symbol associated with the stored keystroke in FIG. 3, wherein a flowchart of a main routine of the software that generates a selection list to aid the user in disambiguating ambiguous keystroke sequences. At step SI, the system waits to receive a keystroke from the keyboard 14. At step S2, a test is made to determine if the received keystroke is the select key. If the keystroke is not the select key, at step S3 the keystroke is added to a stored keystroke sequence. (Savolainen, Page 4, Paragraph 0044).

Savolainen discloses the claimed aspect of matching the beginning of the keystroke sequence with a stored keystroke sequence in a database, the stored keystroke sequence having associated word choices stored in the database wherein the associated word choice is a data value or a data symbol associated with the stored keystroke sequence, wherein at S4, objects corresponding to the keystroke sequence are identified from the vocabulary modules in the system. Vocabulary modules are

libraries of objects that are associated with keystroke sequences. An object is any piece of stored data that is to be retrieved based on the received keystroke sequence. For example, objects within the vocabulary modules may include numbers, letters, words, stems, phrases, or system macros. (Savolainen, Page 4, Paragraph 0045).

Savolainen discloses the claimed aspect of displaying the matching word choices associated with the beginning keystroke sequence and performing as per a multi-character key input, if the character or multi-character key representing the character is inputted ambiguously, wherein in FIG.3, wherein a flowchart illustrates at S7 displaying a selection by prioritizing them.

Regarding Claim 22, most of the limitations have been met in the rejection of Claim 21. See the rejection of Claim 21. Savolainen discloses the claimed aspect of inputting the beginning characters unambiguously using the keyboard inputting the following characters ambiguously using the keyboard, wherein the text input system 10 shown in FIG. 1 includes a keyboard 14 with a reduced number of keys. A plurality of letters and symbols are assigned to a set of data keys 15 so that keystrokes entered by a user are ambiguous. Due to the ambiguity in each keystroke, an entered keystroke sequence could match a number of words with the same number of letters. The text input system includes a memory having a number of vocabulary modules. The memory may include temporary storage media such as a random access memory (RAM), and permanent storage media such as a read only memory (ROM), floppy disks, hard disks, or CD-ROMs, for example. The vocabulary modules contain a library of objects that are

each associated with a keystroke sequence. Each object is also associated with a frequency of use. Objects within the vocabulary modules that match the entered keystroke sequence are identified by the text input system. Objects associated with a keystroke sequence that match the entered keystroke sequence are displayed to the user in a selection list 27 on a display 16. The objects are listed in the selection list according to their frequency of use. A select key 17a is pressed by a user to delimit the end of a keystroke sequence. The first entry in the selection list is automatically selected by the system as the default interpretation of the ambiguous keystroke sequence. The user accepts the selected interpretation by starting to enter another ambiguous keystroke sequence. Alternatively, the user may press the select key 17a a number of times to select other entries in the selection list. For words that are not in the vocabulary modules, a two-stroke or multiple-stroke method may be used to unambiguously specify each letter. The system simultaneously interprets all entered keystroke sequences as a word, as a two-stroke sequence, and as a multiple-stroke sequence. The multiple interpretations are automatically and simultaneously provided to the user in the selection list. (Savolainen, Page 2, Paragraph 0029).

Furthermore, Savolainen discloses that the second keystroke qualifies or disambiguates the first. The position of the second keystroke in the 3-by-3 array of data keys specifies the character to be chosen from the 3-by-3 array of characters on the top of the first key. Each pair of keystrokes is therefore also interpreted by the text input system and automatically presented to the user in the selection list. For example, as shown in FIG. 1, the entry of a keystroke sequence ADF and OLX first designates the

top center data key, then the character on that key in the left position of the second row, namely, the letter "a". The next two keystrokes NBZ and EWV designate the top right data key, then the symbol in the center position of the second row, namely, the letter "b". The two-stroke interpretation "ab" is therefore provided as an entry 21 in the selection list. It will be appreciated that the two-stroke interpretation may also be reversed, with the first keystroke qualifying or disambiguating the second. A second method is also employed in which a sequence of keystrokes is interpreted as unambiguously specifying a specific string of alphabetic characters as in the multiple keystroke method. (Savolainen, Page 4, Paragraph 0040).

Savolainen discloses the claimed aspect of matching the keystroke sequence or the beginning of the keystroke sequence with a stored keystroke sequence in a database, the stored keystroke sequence having associated word choices stored in the database wherein the associated word choice is a data value or a data symbol associated with the stored keystroke sequence, wherein at S4, objects corresponding to the keystroke sequence are identified from the vocabulary modules in the system. Vocabulary modules are libraries of objects that are associated with keystroke sequences. An object is any piece of stored data that is to be retrieved based on the received keystroke sequence. For example, objects within the vocabulary modules may include numbers, letters, words, stems, phrases, or system macros. (Savolainen, Page 4, Paragraph 0045).

Savolainen discloses the claimed aspect of displaying as text input the data value or data symbol with the same beginning characters assigned to the keystroke;

and displaying the matching word choices with the same beginning characters associated with the keystroke sequence, wherein in FIG.3, wherein a flowchart illustrates at S7 displaying a selection by prioritizing them.

Regarding Claim 24, most of the limitations have been met in the rejection of Claim 1. See the rejection of Claim 1. Williams does not teach the claimed aspect of a choice numerals will be displayed on pressing a key or a combination on keys. However, Savolainen discloses the claimed aspect of a choice numerals will be displayed on pressing a key or a combination of keys in FIG. 1, wherein numerals are illustrated on keys and shift key allows users to use different functions illustrated on the keys. It would be obvious to one of ordinary skill in the art at the time of the invention to combine Williams's keyboard with Savolainen's keyboard system with numeral choices, because it would to perform other functions such as dialing a phone number or performing calculations.

Claims 26, 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Savolainen, US Pub. No.: 20020126097 A1 in view of Williams US 7,155,683.

Regarding Claim 26, most of the limitations have been met in the rejection of Claim 25. See the rejection of Claim 25. Savolainen does not teach the claimed aspect of the letter choices are accented or diacritic variations of the associated character. However, Williams discloses the claimed aspect of the letter choice are accented or diacritic variations of the associated character, wherein the communication terminal with a keypad having a key for requesting input of a special sign from a list of special signs in the text string, and wherein the keypad has a key for requesting the processor to replace a special sign with the next special sign from the list of special signs, and said processor handled this list of special signs as and endless loop. Hereby alternative special signs become available in an easy way. (Williams, Page 2, Paragraph 15). Applicant should duly note that the sign could be an umlaut. It would be obvious to one of ordinary skill in the art at the time of the invention to combine Savolainen's word choice system with Williams's special sign listing, because it would allow users to add signs to emphasize a word or meaning.

Regarding Claim 40, most of the limitations have been met in the rejection of Claim 39. See the rejection of Claim 39. Savolainen does not teach the claimed aspect of the beginning text can be entered unambiguously and then followed by ambiguous text inputting where only choices with the same starting text as the beginning unambiguous text input are displayed. However, Williams discloses the claimed aspect of the beginning text can be entered unambiguously and then followed by ambiguous

text inputting where only choices with the same starting text as the beginning unambiguous text input are displayed, wherein a communication terminal having a display and a keypad having a plurality of keys associated with several letters each and processor means controlling the display means in accordance with the operation of the keypad, a selectable predictive editor program for generating an output containing word matching a received string of ambiguous key strokes, said predictive editor program has a number of associated vocabularies including at least one language dependent dictionary and at least one dictionary receiving user defined inputs. An editor application controlled by the processor means communicates with said predictive editor programs for generating matching words based on an ambiguous string of key strokes, said editor application stores words that have to be entered in an unambiguous way in one of said least one dictionary receiving user defined inputs. The processor means associates a storing time for the unambiguous entered words stored in dictionary receiving user defined inputs; and the processor means maintains the dictionary containing the unambiguously entered words in accordance with the storing time. (Williams, Page 1, Paragraphs 50-65). It would be obvious to one of ordinary skill in the art at the time of the invention to combine Savolainen's word choice system with Williams's unambiguous/ambiguous text input are display, because it would allow users to complete entry faster.

Regarding Claim 41, most of the limitations have been met in the rejection of Claim 25. See the rejection of Claim 25. Savolainen does not teach specifically the claimed aspect of a choice of punctuations & symbols will be displayed on pressing a key or a combination of keys. However, Williams discloses the claimed aspect of a choice of punctuations & symbols will be displayed on pressing a key or a combination of keys, wherein the communication terminal with a keypad having a key for requesting input of a special sign from a list of special signs in the text string, and wherein the keypad has a key for requesting the processor to replace a special sign with the next special sign from the list of special signs, and said processor handled this list of special signs as and endless loop. Hereby alternative special signs become available in an easy way. (Williams, Page 2, Paragraph 15). It would be obvious to one of ordinary skill in the art at the time of the invention to combine Savolainen's word choice system with Williams's displaying symbols, because it would allow users to enhance their expression of words by using symbols.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) Blumberg, 5,664,896, 09/09/1997, "Speed typing apparatus and method".

2) Grover, et al., US 5,818,437, 10/06/1998, "Reduced keyboard disambiguating computer".

3) King, et al., US 6,307,549, 10//23/2001, "Reduced keyboard disambiguating system".

4) Kraft, US 6,411,822, 06/25/2002, "Communication terminal".

5) Yu, US 6,556,841, 04/29/2003, "Spelling correction for two-way mobile communication devices".

6) Yang, et al., US 6,562,078, 05/13/2003, "Arrangement and method for inputting non-alphabetic language".

7) Kraft, Christian et al., US 20030104839 A1, "Communication terminal having a text editor application with a word completion feature".

8) Blumberg, Marvin R., US 20040168131A1, "Speed typing apparatus and method".

9) Robinson, et al., US 6,801,190, "Keyboard system with automatic correction".

10) Bollman, Taylor et al., US 20040239533 A1, "Compressed standardized keyboard".

11) Bollman, Taylor, US 20060028358 A1, "Compressed standardized keyboard".

12) Bollman, Taylor, US 20060028358 A1, "Compressed standardized keyboard".

13) Williams, Stephen, US 20070157122 A1, "Communication Terminal Having A Predictive Editor Application".

14) Williams, Stephen, GB 2388938 A, "Communication Terminal Having A Predictive Editor Application".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ECE HUR whose telephone number is (571) 270-1972. The examiner can normally be reached on Mon-Thurs 7:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Coby can be reached on 571-272-4017. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

August 27, 2007

Ece Hur
E.H. /e.h.

Frantz Coby
FRANTZ COBY
SUPERVISORY PATENT EXAMINER